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on the Spanish plates and nineteen stars on the Egypt plates. The fewer stars on the Egypt plates is explained by adverse conditions which overbalanced the effect of the thin clouds at the Spanish station.

All of the objects found were identified as known stars. The average faintest visual magnitude of the stars shown is 8.0. Assuming that the average planetary body would be one magnitude fainter photographically than the faintest stars on the plates, then any planet of 7.0 visual magnitude should have been recorded on our photographs. This conclusion is somewhat more far-reaching than could be drawn from the 1901 eclipse results and tends to confirm the belief that some other explanation must be sought for the peculiarities in the motions of *Mercury*.

The recent investigations of SEELIGER on the effect of the matter concerned in the zodiacal light upon the inner planets seem to show that the observed outstanding perturbations in the motions of *Venus* and *Mars*, as well as those of *Mercury*, can be sufficiently accounted for upon a reasonable assumption of the distribution of such matter about the Sun. Should this explanation be confirmed, the only further need to continue the intramercurial search will be for the purpose of determining whether there are *any* asteroidal bodies in that region. A considerable number of such bodies might exist without their combined mass being sufficient to produce appreciable disturbances in the motions of the planets.

C. D. PERRINE.

#### NOTE ON COMET *b* 1907 (MELLISH).

A telegram announcing the discovery of a new comet by Mr. MELLISH, at Madison, Wisconsin, was received here on the afternoon of April 15, 1907. Observations were secured by the writer with the 12-inch telescope on the nights of April 15th, 16th, 17th, and 29th, and with the 36-inch on April 30th and May 7th. On the first three nights the comet was visible in the 3-inch finder, though faint on the third night on account of increasing moonlight. It was, however, a difficult object to measure because of its diffuseness and irregularity of outline. Examination with the 36-inch telescope on April 16th showed a broad fan-shaped tail in the south-preceding quadrant that could be traced about 6' from the coma, which

appeared to be roughly circular and less than 2' in diameter. There was no well-defined condensation.

By May 7th the comet was too faint to measure with the 12-inch telescope. A rough comparison with the ephemeris in *A. N.* 4172 gives the residuals ( $O - C$ ) for May 7th,  $+18^s$  and  $+1'.5$ .

R. G. AITKEN.

May 24, 1907.

#### VISUAL OBSERVATIONS OF COMET 1905 IV.

A note in No. 113 of these *Publications* (p. 88) calls attention to the reobservation, photographically, on March 21, 1907, of this comet, which was originally discovered by KOPFF in March, 1906.\* Unfavorable weather conditions prevented my looking for the comet with the 36-inch refractor until the night of April 20, 1907, when it was readily seen. Though it was hardly as bright as a 14th-magnitude star, it was not a very difficult object to measure, because it had a well-defined nucleus of about  $15\frac{1}{2}$  or 16th magnitude.

A second observation was secured on May 4, 1907, and a comparison of the two with WEISSE's ephemeris in *A. N.* 4166 shows that the observed motion is slightly more rapid than the predicted.

R. G. AITKEN.

May 24, 1907.

#### NOTE ON COMET *a* 1907 (GIACOBINI).

From four observations (March 9th, by GIACOBINI, at Nice; March 13th, April 3d, by FATH, at Mt. Hamilton; April 9th, by AITKEN, at Mt. Hamilton) a second orbit of Comet *a* 1907 has been computed under the direction of Professor CRAWFORD. The fourth observation was introduced into the computation by the formation of a fictitious third position based on the two April observations.

The four observations are satisfactorily represented by a parabola. The inclination of the plane of the orbit to that of the ecliptic is  $141^\circ 39'$ ; the longitude of the ascending node is  $97^\circ 39'$ ; the longitude of perihelion is  $54^\circ 21'$ . The perihelion distance is 2.05 astronomical units, and the time of perihelion passage is March 19, 1907. The elements and an ephemeris extending to the end of May are published in *Lick Observatory Bulletin*, No. 113. The comet is moving away